Key Curriculum Press
Discovering Algebra, Algebra I

Degree of Evidence regarding the Standards for Mathematical Practice:

Moderate evidence

Summary of evidence:

1. **Make sense of problems and persevere in solving them**. The teacher notes encourage teachers to have students answer in as many ways as possible – then offer some suggestions. Students are asked to connect multiple representations (tables, graphs, equations, situations) through the practice problems and investigations. (For example, Investigation – p. 166; practice problems p. 169 #6) Multiple methods for solving problems are shown and stressed. Solving equations is done by balancing and by using graphing calculator technology. There are some opportunities for students to reflect on their model and decide what might be a better model. There are many opportunities for students to make sense and meaning in real-world problems. In summary, understanding of the underlying mathematical idea is at the heart of the lessons, and making sense of concepts was fundamental in the chapters reviewed.
2. **Reason abstractly and quantitatively**. Students are asked repeatedly to make sense of mathematics in context as well as without context. There are regular opportunities to apply mathematical ideas, not just the algorithm. There are many examples and questions that apply mathematics in a real-world context. Students are asked to take real-world situations and represent them in symbols throughout the chapters. Real-world situations are frequently used to introduce topics in the chapters reviewed. There are opportunities for students to practice with mathematical symbols without context as well as many opportunities for them to make sense of symbols in context.
3. **Construct viable arguments and critique the reasoning of others**. The teacher notes offer suggestions of ways to have students share their ideas. Students are asked to explain their reasoning in practice problems. Students develop their own understanding with other students throughout the chapter by performing investigations. There are limited to no error analysis problems in the chapters reviewed. The structure of the resource is to have students communicate as they build their understanding of mathematics. There are opportunities for students to justify their answers and reasoning throughout the chapters.
4. **Model with mathematics**. Many concepts are related to things in the real world. (e.g., On p. 165 linear patterns are linked to Braille; basket weaving is linked to recursive ideas.) The resource uses models of things students know to understand new concepts. Due to the number of real-world connections, students are often creating mathematical models. Models are used to represent difficult mathematical ideas. (e.g., cups & pennies for solving equations, p. 196) In summary, creating and using mathematical models is central in the chapters reviewed.
5. **Use appropriate tools strategically.** Graphing calculators are referenced frequently throughout both the teacher resource and the student text. There is some discussion of strengths and weaknesses of different methods, but in the chapters reviewed, there is no contrasting of different technologies. Students are expected to use other technologies as well, like motion detectors, and algebra software is referenced occasionally. Concrete models and manipulatives are used. Calculators are referenced in most lessons. In the sample reviewed, students get no experience comparing the effectiveness and usefulness of different models.
6. **Attend to precision.** Students are given frequent opportunities to communicate about mathematics as they construct an understanding of topics. Examples use proper notation and are

precise. In the chapters reviewed, examples of precise communication, for example a sample student conversation in the teacher's edition, are not present. There is attention to precision in the examples, but no discussion for students to tackle.

7. **Look for and make use of structure**. Important mathematical ideas are developed through students observing patterns. (For example, see chapter 3.) In most sections of this resource, students investigate in order to make a generalization about an important mathematical concept. Observation and use of patterns is central to most of the investigations. Student use prior learning to learn new concepts. Recognizing and using patterns is a basis of this resource, and patterns are frequently used for students to generalize about mathematics.
8. **Look for and express regularity in repeated reasoning.** Patterns are used for students to generalize and create shortcuts. (For example, recursion is used to motivate linearity.) Students use repetition to recognize patterns and make generalizations, and patterns are used to help students see and make generalizations.